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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------|-------------|----------------------|---------------------|------------------|
| 10/732,865 | 12/10/2003 | Charles E. Hagar | 7784-000681 | 8230 |
| 27572 | 7590 | 09/07/2004 | EXAMINER | |
| HARNESS, DICKEY & PIERCE, P.L.C. | | | CYGAN, MICHAEL T | |
| P.O. BOX 828 | | | ART UNIT | |
| BLOOMFIELD HILLS, MI 48303 | | | PAPER NUMBER | |
| | | | 2855 | |

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/732,865

Applicant(s)

HAGAR, CHARLES E.

Examiner

Michael Cygan

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-20 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 9 and 21 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 11-13, 15, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Jacobs (US 2,608,855). Jacobs discloses the claimed method, comprising forming a pressurizing cavity [11] external to and adjacent an internal pressure vessel [10], introducing pressurized helium through a port [16], and monitoring the internal pressure vessel for helium leaking through the vessel with a detector [13], where the pressurization sufficiency is tested as set forth in column 2 lines 24-28. See entire document, especially Figure and column 1 line 47 through column 2 line 53.
2. Claims 11-14, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Olivieri (US 4,413,503). Olivieri discloses the claimed method, comprising forming a pressurizing cavity [15,19] external to and adjacent an internal pressure vessel [11], introducing pressurized gas through a port [20], and monitoring the vessel for leakage with a detector [28] which isolates a portion of the vessel interior (i.e., the portion contained in the collection tube)

and detects the location of leaked gas. The step of repairing leaks in such a tank is also disclosed to be known (column 1 lines 19-21; column 2 lines 18-21). See entire document, especially Figures 1-2 and columns 2-3.

3. Claims 11, 16-20, 23, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Harano (JP 57153236A). Harano discloses the claimed method, comprising forming a pressurizing cavity [D] external to and adjacent an internal pressure vessel [1,2], introducing (relatively) pressurized helium, positioning an isolation cup [5] in the interior of the vessel at a suspected leakage site, coupling the cup to the vessel through a vacuum seal [4], and monitoring the internal pressure vessel for helium leaking through the vessel with a detector [12]. The sheet [10] is considered to be part of the supporting structure, given the broadest reasonable definition of "supporting". See Figures 1 and 2, and English language abstract.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harano (JP 57153236A) in view of Jacobs (US 2,608,855). Harano teaches

the claimed invention except for the use of helium. Jacobs teaches the use of helium as a leak detector gas in a tank; see column 1 line 47 through column 2 line 53. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use helium as taught by Jacobs in the invention taught by Harano as the detection gas, since Jacobs teaches its usefulness for detecting tank leaks, and helium is notoriously well known for its ability to detect microscopic leaks.

5. Claims 1, 3-8, 10, 22, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harano (JP 57153236A) in view of Billias (US 3,645,816). Harano teaches the claimed invention except for the step of repairing detected leaks. Billias teaches the step of sealing leaks detected in fuel tanks integrally formed in aircraft; see abstract, Figure 1, column 1 lines 7-12, and column 2 lines 46-68. It would have been obvious to one having ordinary skill in the art at the time the invention was made to seal leaks detected in fuel tanks integrally formed in aircraft as taught by Billias in the invention taught by Harano, since Billias teaches that such integrally formed aircraft fuel tanks must be constantly for fuel leaks, and the next step after leakage determination is repair, since a leak is "a severe condition and needs to be repaired immediately."

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harano (JP 57153236A) in view of Billias (US 3,645,816), further in view of Jacobs (US 2,608,855). Harano teaches the claimed invention except for the use of helium. Jacobs teaches the use of helium as a leak detector gas in a tank; see column 1 line 47 through column 2 line 53. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use helium as taught by Jacobs in the invention taught by Harano as the detection gas, since Jacobs teaches its usefulness for detecting tank leaks, and helium is notoriously well known for its ability to detect microscopic leaks.

Allowable Subject Matter

7. Claims 9 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior art neither discloses nor fairly teaches the use of a different pressurized fluid in a cavity annulus which is tested for leaks in combination with the other positively recited elements of the claims.

Conclusion


8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fuel tank leak detection is disclosed by Farmer (US

3,737,125), Meuleman (US 4,424,708), and Burton (US 3,683,675). Leak detection is taught by Bachler (GB 2,000,300 A), Ito (JP 57194329A), Zoccoletti (US 5,267,468), Saulgeot (US 4,773,256), Shimamune (JP 62269032A), Ishitobi (JP 59176640A), and Ruthrof (US 5,335,535).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is (571) 272-2175. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



MICHAEL CYGAN, PH.D.
PRIMARY EXAMINER